

CEA NO. 3322	TITLE MCB Benzene Reduction	Boehm	AR NO. 3322	DATE 12/29/80	VAR. NO. 2
PRODUCT Monochlorobenzene		COMPANY MCI	PLANT Krummrich		

COST ELEMENT			SK	CAPITAL	EXPENSE
	EXPENDED			545	21
	COMMITTED			274	0
	ESTIMATE TO COMPLETE			3,081	439
	PENDING VARIANCES			0	0
	THIS VARIANCE			315	53
	UNDEVELOPED DESIGN			0	0
NEW ESTIMATED FINAL COST				4,215	513
AR ESTIMATE				3,900	330
	(OVER)/UNDER RUN			(315)	(183)
CONTINGENCY BEFORE THIS VARIANCE				332	90
CONTINGENCY AFTER THIS VARIANCE				350	93

VARIANCE CLASSIFICATION			
<div><input type="checkbox"/> PROJECT SCOPE</div> <div><input type="checkbox"/> PROCESS PREMISES</div> <div><input type="checkbox"/> SITE PREMISES</div> <div><input checked="" type="checkbox"/> DESIGN AND CONSTRUCTION FACTORS (+\$315k)</div> <div><input type="checkbox"/> ESTIMATING FACTORS</div>			
TOTAL VARIANCE SUMMARY (INCLUDING THIS ONE)			
↓ NUMBER OF VARIANCES		COST TO DATE	
		CAPITAL	EXPENSE
1	SUM OF PROJECT SCOPE, PROCESS PREMISES, AND SITE PREMISES VARIANCES	0	0
2	SUM OF DESIGN & CONSTR. FACTORS AND ESTIMATING FACTORS VARIANCES	+315	+183

DESCRIPTION, JUSTIFICATION, EFFECT ON PROJECT SCHEDULE, COST

This project provides facilities (1) to insure compliance with OSHA regulations on airborne benzene and (2) to reduce the discharge of flammable organics to the plant sewer.

escription: This variance seeks approval of (1) a definition change to replace rather than modify an existing sewer box system, (2) an estimate update for a list of items resulting from definitive design.

*John*  
*Can you make sure of the numbers here?*  
*Ed*  
*F12*  
 - continued -

APPROVAL AS INDICATED				DISTRIBUTION	
TITLE & NAME	NOTED	APPROVED	DATE	To Those Approving And:	
PROJECT MANAGER				W.B. Hicks - G4NA	
J.J. Seidel/J.O. Wright - F4EB				R.M. Kountz - F4EA	
MANAGER, ENGINEERING				C.F. Luecke - F4EA	
R. Lee - F4WB				G.A. Francis - F2WD	
DIRECTOR, ENGINEERING				W.E. Scruggs - F4EA	
L.D. Shaver - F4WA				J.O. Stanborg - F1EA	
DIRECTOR OF CED				R.L. Wiese - F4WA	
A.W. Andrews - F4EA				E.B. Peek - F4EP	
J.W. Molloy - 1740				K.P. Winkler - F1WE	
E.N. Brasfield - G4NE				W.B. Papageorge - GAWA	
				J.C. Peduzzi - 1740	
				J.F. Thompson - G4NK	
				W.W. Varnado - G4NK	

Justification:

	<u>\$k Capital</u>	<u>\$k Expense</u>
1. Definitive design revealed that project work on the two existing sewer boxes, per the approved definition, would increase capital by \$23k. In addition, maintenance access would be restricted. Plant and CED personnel recommend abandoning the existing sewer boxes and building one new box in a different location. This adds an additional \$23k to capital. Existing access will be maintained. Project construction will be simplified, with less sewer box downtime. Design is proceeding on the new sewer box.	+46	+10
2. Actual process <u>design</u> hours exceeded the estimate primarily due to resolving problems in the waste water system.	+28	3d <sup>0</sup>
3. Design of area sewers and underground process drain piping resulted in higher estimated cost due to: a. 150 additional feet of sewer. b. underground lines deeper than assumed in the approved estimate. c. 100% hand excavation required vs 70% assumed in the approved estimate. d. 50% more existing paving removed and later replaced due to necessary excavation. No less costly alternates are known which would still achieve the committed project results.	+120	+43
4. Approved engineering flow diagrams resulted in about 1100 ft. of additional piping not in the approved estimate.	+75	0
5. Design produced miscellaneous other estimate changes including a \$19k increase in the paving estimate and a \$28k increase due to the actual cost of the separate pit cover/pump support.	+46	0
Total Variance	+315	+53

*~700 extra design hours*

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Effect on Project Schedule: At this time no change in project completion date is expected. However, the above list of changes (in particular the sewer and underground piping increase) do represent significant additional field work and a potential mechanical completion delay. This will be resolved when detailed construction schedules are prepared in the summer of 1981. If necessary, a schedule variance will be submitted at that time.

Effect on Project Cost: Project capital is increased by \$315k and expense is increased by \$53k by a list of design and construction factors as described above.

*J. R. Love*  
J.R. Love

/s

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